

# AMATEUR RADIO



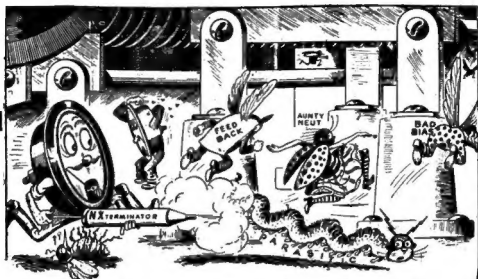
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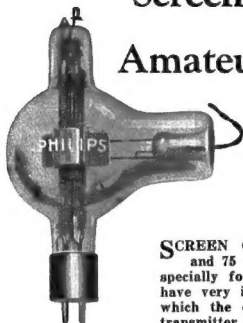
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Table A shows the various electrical properties of the Philips amateur transmitting valves:—

## CHARACTERISTICS:

Table A.  
Type.

|                                    | Screen Grid Valves |         |
|------------------------------------|--------------------|---------|
|                                    | QC 05/15.          | QB 2/75 |
| Filament Voltage .....             | 4.0                | 10.0    |
| Filament current* .....            | 1                  | 3.25    |
| Saturation current* .....          | 400                | 2,000   |
| Anode voltage .....                | 400-500            | 2,000   |
| Screen grid voltage .....          | 75-125             | 300-500 |
| Max. anode dissipation .....       | 15                 | 75      |
| Anode dissipation on test .....    | 20                 | 100     |
| Max. screen grid dissipation ..... | 3                  | 15      |
| Amplification factor* .....        | 225                | 200     |
| Mutual conductance (slope)* .....  | 1.4                | 1.4     |
| Int. resistance* .....             | 160,000            | 150,000 |
| Anode-grid capacity .....          | .001               | .02     |
| Max. diam. of bulb .....           | 50                 | 100     |
| Max length .....                   | 160                | 210     |

\*Approximate values.

# PHILIPS

## TRANSMITTING VALVES

# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

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Vol. 3. No. 9

1st September, 1935.

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## EDITORIAL ..

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The amateur's enthusiasm for radio experimentation is well known to his admirers and critics; probably this is the secret of his whole-hearted application to our interesting hobby.

This interest is laudable. To accomplish anything of real value we must have knowledge and commonsense, coupled with enthusiasm, before anything of real value can possibly be obtained in any sphere of activities.

However, when we hear that certain students, who, whilst seeking knowledge at our Institute class, have let their enthusiasm run away with their better judgment, to the extent that they were caught operating on amateur bands before they had passed their Amateur Operator's Proficiency examination, we wonder if they had considered the consequences sufficiently before lapsing. The Institute has always made it quite clear that unlicensed operation does not do anything to improve the lot of the genuine experimenter. In fact, the Institute has always found that these unlicensed transmissions, quite apart from breaking the regulations, also cause considerable interference to broadcast listeners, for which licensed amateurs may be blamed as well as radiating unsatisfactory signals on our bands.

This latter trouble is due mainly to lack of suitable apparatus and experience in correct operation. In the case outlined above, we regret to say that the Radio Inspectors' Department intends to take legal action to prohibit further breaches of the law.

We wonder sometimes, in cases such as these, whether those concerned realise the harm they are doing to the amateur fraternity by their conduct.

The Institute has made it a policy, based on a strong sense of personal honour, to assist the Radio Inspectors' Department in any matters governing the experimental licensee, and we flat-

ter ourselves that we have achieved a degree of goodwill, which has been built up on confidence, integrity and co-operation. It is, therefore, to be deplored that individual members of the Institute should do unlawful actions, which might help to break up this co-operative spirit now happily established.

We have always regarded the amateur as representing the best type of individual, possessing such qualities of intellect and character as would raise his outlook above taking the "short cut" in any matter connected with the "good old game."

"Let's keep our reputation clean."

---

---

Government House,  
Canberra,  
16th July, 1935.

The Military and Official Secretary to the Governor-General is commanded to acknowledge receipt of the loyal and dutiful message which the members of the Wireless Institute of Australia forwarded, through the medium of amateur radio stations, to His Majesty the King on the occasion of His Majesty's birthday.

The Military and Official Secretary is further commanded to state that His Majesty deeply appreciates the sentiments of loyalty and affection to which the message gives expression.

The President, the Wireless Institute of Australia, 191 Queen Street, Melbourne.

---

# The Stability and Otherwise of Crystal Oscillators

(By R. M. HUEY, B.Sc., B.E.,  
VK2HU, Laboratory Staff, Amalgamated Wireless, A/sia, Ltd.)

Quite a large number of amateurs seem to imagine that a quartz crystal provides a constant frequency in their transmitter. This is not the case, and variations of several kc/s on the 7mc band may quite possibly occur due to circuit and temperature variations. In this article an attempt will be made to show how to minimize these variations. First let us consider briefly the crystallography of quartz and just how it oscillates.

## Axes in a Crystal.

Referring to Fig. 1, the three main axes in a hexagonal quartz crystal are shown as the X, Y and Z axes. These are otherwise known as the electrical, mechanical and optical axes. As shown an X cut plate contains the Y and Z axes and is at right angles to the X axis, while a Y cut plate contains X and Z axes and is at right angles to the Y axis.

If we apply a potential across a crystal a stress and consequently some change in the dimensions of the crystal will occur. If we apply an A.C. e.m.f. across the crystal a mechanical oscillation will occur. Conversely a mechanical oscillation within the crystal will generate an A.C. e.m.f. across the electrodes. So, by feeding back a small amount of power to supply losses the crystal will keep on oscillating.

## Frequency of Oscillation.

The frequency is determined by the physical dimensions of the plate and the way it is cut from mother crystal. Thus, an X cut plate is thicker for some frequencies than Y cut plate. Other cuts at certain angles to the Z axis are possible and in some cases have advantages over the ordinary X or Y cut plates.

Several modes of vibration are possible. The vibration normally made use of is a shear between the planes ABCD and EFGH shown in Fig. 2. That is, one face of the crystal will move relative to the other, as shown

in Fig. 3. The frequency of vibration in this mode is inversely proportional to the dimensions AE, i.e., the thickness of the crystal. However, it is possible for vibration to occur by the planes ABFE and DCGH shearing relative to each other. This vibration will be at a much lower frequency, since the dimension AD is much larger than AE. In some cases it will happen that a harmonic of this low frequency oscillation will interfere with the desired high frequency fundamental of the crystal and stop oscillation. This is the reason why in some cases a non-active crystal may be made to oscillate by grinding as little as half a mil (1 mil = 1 thousandth of an inch) off one edge or the other. This edge grinding has also a small effect on the natural frequency of the plate.

The elastic properties determining the frequency are dependent on the temperature and pressures under which the crystal is operating. Of these effects temperature is the most important. A Y-cut plate has a temperature coefficient of about +80 parts in a million per degree centigrade, i.e., a 3.5 mc/s Y cut crystal will increase in frequency by 280 cycles for every °C. rise in temperature. X cut plates have a temperature coefficient of about -20 parts in a million per °C. Under operating conditions a range in temperature of 15°C. is easily possible. This means a frequency change of 4.2 kc/s or 1.05 kc/s for 3.5 mc/s Y and X cut crystals respectively. The frequency change due to a variation in pressure on the crystal is dependent on many factors including the flatness of the particular plate. However, a maximum figure of 100 parts in a million for a good plate is a reasonable figure, i.e., 0.35 kc/s at 3.5 mc/s.

## Crystal Holders.

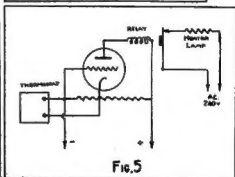
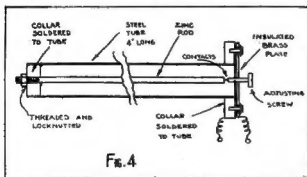
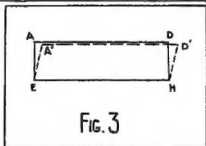
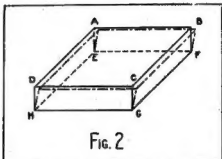
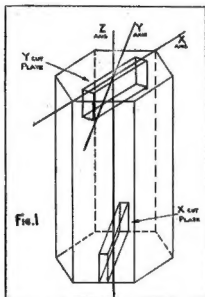
One very convenient method of frequency change is by varying the air gap between the top electrode and the



crystal. This may be done by mounting the top electrode on a screen adjustment or by inserting spacers between the crystal and the top electrode. Thin pieces of paper are quite suitable. The variation obtainable is from 300 to (in some cases) 1500 parts in a million, usually limited by the crystal ceasing to oscillate as the gap is made too large. Increasing the gap increases the frequency. In a gap of

quency. Exactly as for a tuned circuit more capacity will adjust the crystal to a lower frequency.

Plate circuit tuning has an appreciable effect on the frequency only when tuned very near the resonance point where the crystal is about to break out of oscillation. A change of several hundred cycles in a 3.5 mc/s crystal oscillator can be caused by plate tuning when near this point,



length about 11-12 mils the air resonates at 3.5 mc/s and stops the crystal oscillating.

## Circuit Conditions.

Of these, two adjustments are mainly important: (a) Capacity across the crystal; (b) Plate tank tuning of the oscillator.

The first is really similar to the alteration of gap in its reaction on the crystal. Up to 100 mμfd across a crystal will cause a change of a few hundred parts in a million in fre-

quency. which is also the point of maximum output.

In circuits such as the tritet this effect is more marked because of the additional inductive coupling between output and crystal circuits. The variation of frequency with applied plate and filament voltage is small except when the tank circuit is very near resonance, when variations of several hundred parts in a million can be caused by variations in plate voltage or in the load taken by the following stage.

## Precautions to Ensure Stability.

(1) Run the C.O. tank back from resonance or use an untuned choke as the tank circuit, making sure that its natural period is not too close to that of the crystal.

(2) In triet oscillators use as small a cathode coil as is consistent with strong oscillations.

(3) Do not overload the C.O.—use no more than 180 volts on plate.

(4) Clamp crystal firmly in a permanent holder.

(5) Do not vary load drawn from C.O., i.e., use permanent unkeyed buffer stage, preferably a pentode or S.G. tube, since these need less excitation than triodes.

If these recommendations are followed the C.O. frequency should be stable to half kc/s at 3.5 mc/s, except for the effects of temperature variation. If they are not followed, frequency variations of as much as 5 kc/s are quite easily possible. Further, when doubling to 7 mc/s these variations are themselves doubled in magnitude.

## Temperature Control.

Although this is somewhat beyond the capabilities and desires of most amateurs, a few figures may be interesting to those intending to work out a rough scheme. In an airtight wooden box of half-inch well-seasoned maple containing only the crystal and thermostat, a 15 or 25-watt 240v. lamp is ample to maintain an operating temperature of 40-50°C. Bimetallic thermostats can be home constructed at a reasonable cost on the scheme shown in Figs. 4 and 5. Those intending to go to such refinements should be well able to work out mechanical details for themselves. The movement of the thermostat contacts for a 5°C. change in temperature is about 0.3 mils for the metals shown. If steel and copper are used, then 0.12 mils, and for copper and zinc about 0.18 mils for the same temperature change. This

is sufficient to break only a minute current and should be used in some manner as shown in Fig. 5 to vary the grid bias of a valve in whose plate circuit the control relay is placed. Alternatively, the plate current of a larger valve operated from the thermostat may be passed through the heater if the box is small and well lagged so that no relay is necessary. A suitable relay should not be difficult to arrange.

## Zero Temperature Coefficient Crystals.

However, a much simpler, and in all respects, preferable method of stabilizing frequency with respect to temperature is to make use of crystals having a zero temperature coefficient. Two methods of cutting these have been described lately, both having as their essentials the initial cutting of the plate at special angles to optical and electrical axes. These two cuts are known as the AT and V cuts, and have been described recently in QST. The AT cut gives a very thin crystal (even thinner than Y cuts), whereas the V cut is about the same thickness as X cuts. Both are quite active, but the V cut crystals need to be flat and parallel to a fairly high accuracy, whereas the AT cuts will oscillate well even when quite high in the centre.

It should be noticed that the temperature coefficient depends not only on the angles of cut but also to quite a large extent upon the finish, flatness and chamfering of the edges of the plate. In any case, the temperature coefficient very rarely exceeds 30 parts in a million and is usually less than 10 parts in a million. The latter figure would mean a shift of only half kc/s at 3.5 mc/s over a temperature range of 15°C.

Blanks of AT or V cuts should be available to the amateur in more reasonable numbers before long. The only objection to the AT cut (in comparison with the V) is its extreme thinness and consequent fragility.

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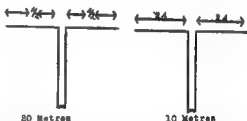
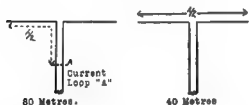
13 Balwyn Road, Canterbury, E.7.

## The Aerial System at VK6MN

Some amateurs may have their shacks so situated that long feeders are a necessity. Such is the case at VK6MN, and after several aerial feeder systems had been tried out, the one in operation now proved to be quite a success. So a description of it will be given.

No attempt will be made to delve into the theoretical whys and wherefores, but just how it works will be explained. Some time ago the doublet type of aerial was given some prominence and it was decided to give this a try-out. But before actually putting it in operation, the disadvantage of being tied to one frequency was rea-

physical centre of the radiator. Thus the tramping up commenced to get the lamps nearest the loop lighting with equal brilliance. After two hours of lowering and hauling up the aerial this was done, and when completed the higher half had 30 feet and the lower 28 feet of wire. It is necessary now to mention that 7/22 stranded enamel wire is used. If number 14, 12 or any other single wire is used, it will be found that longer lengths than used with stranded enamelled wires will be necessary. This is a point worth mentioning (as it is seldom, if ever, taken into consideration when making an aerial), simply because it is a fact



lised, and so, in an endeavour to overcome this, instead of using twisted feeders, the wires were separated by spreaders 1½ in. apart, and hooked on to a half wave forty metre Hertz radiator. Feeders were 90 ft. long.

The first thing done was to get this radiator the correct length, and this was accomplished by the aid of pen-lamps shunted across the current loop. Half a dozen were used at first, spaced about a foot apart, and when the key was pressed and the aerial feeding, it was found that the current loop was not in the centre of the 65 ft. of wire, as the lamp in this position did not light up brightest, but one nearer the mast did. Now, one mast is 50 ft. high, and the other allows the aerial to be 33 ft. off the ground. Seeing that one end had a greater capacity effect to earth than the other, it was noticed that the lamps equi-distant from each free end of the radiator did not light up with corresponding brilliancy, which indicated that the feeders could not be attached to the

which has been severely neglected by amateurs generally and the amateur's beloved "bible" doesn't breathe a word about it.

The figures given above, 30 feet and 28 feet, give a total of 58 feet for the 40-metre half wave Hertz radiator used at VK6MN. If your aerial is nearer the ground, less wire than that will be necessary and vice versa. The 58 feet here described is clear of trees, iron roofs, or any such like objects.

But to get on with the working of the aerial. For the 40-metre band, a coil shunted with a condenser as described for twisted feeders is used, and it works according to the "book of words."

The next band tried out was 20 metres, and using the aerial as a twin voltage fed half wave one, it works excellently. Going down to ten, this system operates as voltage-fed twin full-wave. Now we come to 80 metres. It works up there O.K. (ask the nearby P.C.L.'s. hi). Just how it does this

is as follows:—Current feed is again used, and the loop is 30 feet down the feeders, from where they join the radiator. From this point to the transmitter is 60 feet, which is a good length for 80-metre feeders. Even although half of the 80-metre radiator is as close together as  $1\frac{1}{2}$  inches, no great loss is apparent, judging from results obtained. Last year VK2NO reported VK6MN 80-metre signals the loudest heard on a portable receiver in some hill hotel in VK2, and QSO's with ZL are all equally as good.

Pea-lamps are fitted permanently at 20 40 and 80-metre current loops, and each one lights up only when the radiation is in its particular frequency.

For those amateurs who may like to turn their aerial into a Christmas tree, the following information may come in useful. If low power is used, then suitable lamps are necessary. In VK6 we use "Competa" fuse-globes, 4v .08 amp. type. Cost, 1/- each here. If high power is used, a good quality 6v pea-lamp does. In conclusion, the readers are made out of micarta strips. — VK6MN, 2/6/35.

We received a letter from Len. Moncur, who is touring the U.S.A. We understand he contacted Harry Kinnear in New York, and spent some time (and money, if we know Courtland-street) with him. He is having a most wonderful time among the W's and should be able to tell more about America than anyone we know.

## Erratum

The following correction, due to difficulty of printing square root signs, should be noted in the article published last month: "Investigation of Solenoid Design," by W. H. Black. VK3WB:—

$$S = \frac{2}{\text{PIR}} \text{ sq. root of } \frac{\text{Lh}}{\text{Cf}} \dots (10)$$

$$\text{and } Z' = 1.57 \text{ sq. root of } \frac{\text{Lh}}{\text{Cf}} \dots (12)$$

These omissions do not invalidate the conclusions regarding impedance and selectivity.—Editor.

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# A Universal Measuring Instrument

(By J. N. O'DEA, VK2FQ.)

There are numerous uses to which an 0.1 milliammeter may be put. This article will describe the use of the meter as a voltage current and resistance measuring instrument. The value of this type of measuring instrument to the amateur is apparent when it is considered that power inputs to the various stages of the transmitter may be calculated, grid currents measured, resistors of unknown values calculated, and, last but not least, tubes checked in receivers.

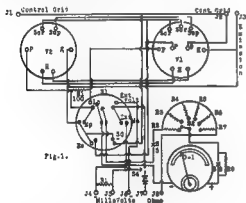


Fig. 1.

UNIVERSAL MEASURING INSTRUMENT

Unfortunately, for the present anyhow, resistances of an accuracy of

1 per cent. are expensive, and to use them would make the cost of the instrument more or less prohibitive for the average experimenter. The only thing left to do was to use resistors of a lower value of accuracy. It was decided to obtain some resistors that were guaranteed to be within 10 per cent. of their rated value. On checking these resistors in a laboratory against reliable standards, the result was rather surprising. The average accuracy of the resistors was found to be 2.4 per cent. This looked much better and it was decided that an average of 2.4 per cent. was near enough for the uses to which the meter would be put. Another consideration is that a lot of the measurements made by the amateur are comparative, and the case is rare where the measurements have to be accurate to within 5 per cent.

The circuit is shown in Fig. 1, and actually represents a tube analyser. This, however, was not the original intention when designing the circuit for the meter. It was only after the circuit for the voltage and current measuring portion was decided on that the tube checking portion was incorporated, in order to utilise the one meter as much as possible.

The range of the meter is increased to read voltages of 0.1, 0.5, 0.10, 0.50, 0.250, 0.500, 0.1000 and 0.1500 volts. The current measuring portion accommodates currents of 0.10, 0.50, and 0.100 milliamperes. Resistances between 100 and 60,000 ohms may be measured, as well as the plate current, plate voltage, grid voltage and screen voltage of certain types of tubes in a receiver.

To increase the range of an 0.1 milliammeter, used as a volt meter, resistance must be placed in series with the meter. Let us see the effect of a resistance of 1000 ohms in series with the meter. Neglecting the resistance of the meter and applying Ohm's Law, we find the voltage range as follows.  $I_{ma} = .001$  amperes.

$$E = I \times R \\ = .001 \times 1000 \\ = 1 \text{ volt.}$$

This means that the meter, with 1000 ohms in series, can read voltages up to 1 volt. If the series resistor was 10,000 ohms, the meter would read 0.10 volts. It is now simple to see that for every volt that the meter is required to read a resistor of 1000 ohms must be placed in series. (1000 ohms per volt.) The reason for neglecting the meter resistance is seen when, by including the meter resistance, the scale is only increased to 1.03 volt. In the case of a series resistor of 100 ohms. Values of meter resistance are quoted here in case they prove helpful to you.

|                |         |          |
|----------------|---------|----------|
| Weston . . .   | 0.1 MA. | 27 ohms. |
| Jewell . . .   | 0.1 MA. | 30 ohms. |
| Triplett . . . | 0.1 MA. | 30 ohms. |

Therefore, the meter resistance can be neglected in our voltage calculations. The voltmeter circuit is shown in Fig. 2.

To increase the current range of the meter it is necessary to shunt the meter with a resistor. Theoretically the correct way to do this is to shunt the meter with resistors equal to  $1/9$ th,  $1/49$ th and  $1/99$ th of the meter resistance in order to obtain a range of 10, 50 and 100 milliamperes respectively. This means that these shunts have to have a very small resistance

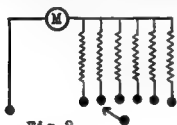


Fig 2

and actually, in the latter two cases, would be less than 1 ohm. Now, if we add a resistance in series with the meter, say 1000 ohms, then the value of the shunt resistor will be higher, because the meter circuit now has a resistance of 1030 ohms (including the meter resistance). Actually for 10 MA, the shunt would be 114.4 ohms. Here again the values are odd, but, by increasing the series resistor for each increase in the range of the meter, we find that the shunt value approaches 100 ohms. Let us use a shunt resistor of 100 ohms, for the three scales, and approach it from a different angle.

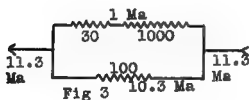


Fig 3

The meter resistance, plus the series resistance, totals 1030 ohms (10 MA scale). According to Ohm's Law for parallel resistors, the current flowing through the SHUNT circuit (100 ohms) is 10.3 times that flowing through the METER circuit. Therefore, the total current flowing through

the circuit is 10.3 plus 1 (1 MA in the meter circuit) = 11.3 MA. See Fig. 3.

This results in our 10 MA scale being increased to 11.3 MA. If we use the same resistors for our series circuit as we are using for our voltage scale, we save on resistors. Our 50 MA scale would utilise the 5000 ohm series resistor and the actual range would be 51.3 MA. By using the 10,000 ohm resistor for the 100 MA scale the range becomes 101.3 MA. Here again these odd values have been disregarded and the ranges read as—10, 50 and 100 MA.

It is only when using the 10 MA scale that the error is inclined to be of any importance; this can be accommodated by adding 13 per cent. to all readings on this scale, should you so desire. The combined voltage and current circuit for the meter is shown in Fig. 4.

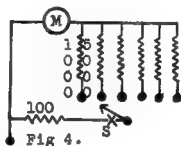


Fig 4.

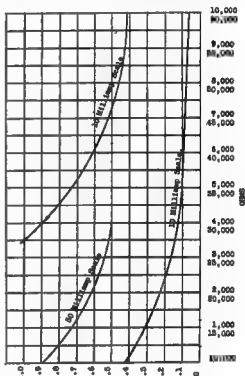
When switch S is open the meter is used as a voltmeter, and when closed as a milliammeter. A combination of the shunt and series resistors is used for the ohmmeter. This will be discussed later.

Reverting to Fig. 1. V1 is a universal socket. This socket takes tubes having 4, 5, or 6-pin bases. However, it is not suitable for all types of tubes, unless the circuit is rearranged for the various elements contained in these tubes. E.G. type 47 tubes cannot be placed in the 5-pin socket. The 47 is a directly-heated tube and consequently the screen would be connected to the cathode circuit, as can be easily noticed on tracing the circuit. A separate adaptor can easily be made to provide for the 47. This is not recommended though, because, as you are aware of the numerous types now in existence, it would certainly complicate matters by trying to provide for all types of tubes. The best thing to

do is to decide on the types that are used in your own case and re-arrange the connections for the socket. V2 is used to plug one end of the lead that goes to the set, in. The other end of this lead has a 6-pin tube-base connected, and by means of adaptors the lead can be used as required. Switch S1 is the two-gang, six-way switch used to switch the meter into the required circuit to be measured. A Marquis switch filled the bill nicely. S2 is another switch of the same type, only in this case it is a single gang. S4 is for the ohmmeter circuit. When in one position it brings the battery into circuit, and with the switch S1 set at Ext. MA., allows the measurement of resistors. By tracing the circuit, it will be seen that the 100-ohm shunt is included in the ohmmeter circuit continued through S1 to the meter. The other end of the meter goes through the required resistor and back to the battery through J8, the resistor under test and on to J7. S3 either includes the 1 Meg. resistor in the voltmeter circuit. By opening S3 and setting the switch S2 for 500 volts, the scale increases to 1500 volts. By shorting the 1 Meg. resistor out with S3, the range is 500 volts. S5 is used to disconnect the meter on switching S1 when measuring tubes. When S1 is set as required, S5 is closed and the reading obtained. Note the 100-ohm shunt included in the plate circuits. This is necessary in order to measure the plate current of the tube under test. The lead from the grid clip in the receiver goes to a battery clip on the adaptor lead; this terminates at socket J1. The grid of the tube under test goes to J2. For an emission test the plug is removed from J2 and inserted in J3, actually connecting the grid to cathode. The rest of the circuit should be easy to follow by now.

Fig. 5 shows the curves that are used for the ohmmeter. Owing to the divisions on the meter, it is impossible to measure resistors below 100 ohms. Each division equals approximately 100 ohms or so. We will now see how to plot these curves. Obtain a piece of graph paper. Marks the points of the meter scale vertically, then along the bottom mark the resistance values in steps of 1000 ohms up to 10,000 ohms. This scale is used in conjunction with the two top curves. Underneath these, and starting from the extreme left-hand side, from 10,000 to 60,000 in steps of 5000 ohms. This is done in

order to keep the graph down to a reasonable size, instead of extending it right across. The lower curve is used with the 10,000 - 60,000 scale. For measuring resistors up to 4000 ohms the 50 MA scale on the meter is used. (Incidentally, the 10 MA scale corresponds to the 1-volt scale and the 50 MA scale corresponds to the 5-volt scale.) For values of over 4000 to 10,000 the TOP 10 MA scale is used, and the BOTTOM 10 MA scale is used for values of over 10,000 to 60,000 ohms. Good old Ohm's Law solves the problem of the actual curves for us.



On tracing the circuit, we find (for the 50 MA scale) that the following resistors are in the circuit. The 100 ohm shunt, 30 ohm resistance and 5000 ohm series resistor. These total 5130 ohms. By shorting J7 and J8, thus bringing the 4.5 volt battery into the circuit, a reading will be obtained on the meter. Ohm's Law will tell us what this reading should be.

$$E = 4.5 \text{ volts.} \quad I = E \div R.$$

$$R = 5130 \text{ ohms.}$$

$$I = \frac{4.5}{5130}$$

$$= .00087 \text{ amps.}$$

$$= .87 \text{ MA.}$$

This is our first point for the curve. Because there was no external resistor in the circuit, the first point is made on the vertical line corresponding to

zero resistance. Assume that an external resistor of 1000 ohms has now been placed across J7 and J8. This means that the total is now 5130, plus 1000, 6130 ohms. What will the current be?

$$E=4.5 \text{ volts.}$$

$$R=6130 \text{ ohms, } I=E \div R,$$

$$4.5$$

$$= \frac{4.5}{6130}$$

$$= .00073 \text{ amps.}$$

$$= .73 \text{ MA.}$$

This becomes the second point on the graph proper. Continue on until you have plotted the points up to 4000 ohms. This will complete the first curve (50 MA). The next one can now be tackled. This is the curve using the 10 MA scale of the meter. Our series resistor now becomes 1000 ohms, plus the meter and shunt, totalling 1130 ohms. Be careful to see that J7 and J8 are not shorted, because if they are a current of approximately four mills will flow. Now, our first point required is 4000 ohms; this is where we left off on the other curve. Right, add 4000 ohms to the circuit resistance and we get 5,130 ohms. The current will again be .87 MA. Continue on with this curve, adding an extra 1000 ohms up to 10,000 ohms. At 10,000 ohms, i.e., 10,000 plus the 1130 in the circuit we get a reading of .4 mills. This completes curve two. Instead of continuing right on and making the curve a yard or so long, start again at the left-hand corner. Ly now it should be clearly understood how to plot these curves. When you have plotted the points for the curves, and you are ready to draw the curves, obtain a piece of 18-gauge wire. Bend this on the curve so that it runs over the points. Then holding the wire in position, draw your curve. This is much easier than trying to do it free-hand.

To measure an unknown resistor, it is always advisable to start with the scale 1000 to 4000 ohms. Should the resistor be higher, it is just a matter of changing S2 to the next scale. The reason for this is evident when it is possible for the resistor to be below 1000 ohms, and the meter set for the higher scale, the needle would swing right over, with possible damage to the meter.

The panel measures 9in. x 7½in. x 2in. This just accommodates the components, as can be seen from the photo. of the underneath portion of the panel. There is no need to state the

actual measurements for drilling the panel, because the individual will have his own ideas on just how to build his own.

## Parts Required.

- 1 0-1 Milliammeter.
- 1 Panel.
- 1 Universal socket, V1. (Na-ald), V1.
- 1 6-pin socket, sub-panel, V2.
- 1 6-way, single gang switch, (Marquis), S2.
- 1 6-way, two gang switch, (Marquis), S1.
- 8 Jacks, J1-8.
- 1 5000 ohm IRC resistor, R3.
- 1 10,000 ohm IRC resistor, R4.
- 1 50,000 ohm IRC resistor, R5.
- 1 250,000 ohm IRC resistor, R6.
- 1 500,000 ohm IRC resistor, R7.
- 1 1 Megohm IRC resistor, R8.
- 2 100 ohm wire wound resistors, 100 MA, R1.
- 2 Panel mounting Toggle switches, S3; S5.
- 1 Panel mounting Toggle switches, 2-way, S4.
- 1 1000 ohm resistor IRC, R2.
- 1 4.5 volt torch battery.
- 2 Test prods and leads.
- Grid clips, screws, etc.

Attention of readers is drawn to Veall's advertisement in this issue, which refers to their mammoth new catalogue, which, they say, is packed with good tidings for hams. The catalogue may be obtained free at any of Veall's stores, or, if written for, a twopenny stamp enclosed will bring it to any address.

Mr. W. Foster, of Messrs. Noyes Bros. (Melbourne) Pty. Ltd., of 597-603 Lonsdale street, has been appointed by the Government to the Electrical Approvals Regulations Committee. Mr. Foster will represent the Wholesale Electrical Traders of Victoria, the Electrical Federation of Victoria, and the Victorian Radio Association. These bodies jointly recommended a panel of three names, and ultimately Mr. Foster was selected.



## Correspondence

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Newstead Street,  
Maribyrnong, W3  
17th April, 1935.

The Editor,  
Amateur Radio,  
Box 2,  
South Melbourne, SCS.

Sir,

Having read with interest the Editorial in April issue, we desire to express our views thereon:—

There will always be a controversy between fone and CW Hams until some more advantageous arrangement of the amateur frequencies is arrived at. Might we suggest that the present frequencies on 3.5, 14, and 28 mc bands be divided, the low frequency end for CW, and the high frequency end for fone, thereby eliminating any possible chances of QRM between CW and fone stations, and also that the 7 mc band be made strictly for CW. In America these bands are divided. Alternatively, we would suggest that, as there is at present a more or less tacit agreement not to use fone on 7 mc at night, to extend the same, and prohibit CW from 3.5 mc at night.

We agree that the quality of the average Ham fone is something appalling on the high frequencies, but this is simply because a large percentage of Hams who endeavour to use fone on these bands have not the means to install a high quality modulation system, so resort to more economical but less easily adjusted methods.

There are the 200 and 160 metre bands which could be availed of for the Ham who wishes to amuse the BCL's with hour after hour of canned music, instead of cluttering up the too few frequencies which are made available on the higher frequency bands. There are a couple of stations on 3.5 mc who are particular offenders in this respect—one even quoting the "Stoodio" clock.

On the 80 metre band, where most of the ragchewing takes place, a power up to 10 watts is quite sufficient to work consistently over a large area when conditions are ideal, but with QRM to be overcome, a few additional watts are necessary to ensure perfect readability, but there is no necessity for the 60 watts mentioned. If a Ham wishes to QSO with his next door Ham, which in the metropolis is only a few miles, let him take off his aerial, and reduce the QRM, or use the 56 mc band, and try to discover some of the possibilities which this band holds, but the country Ham is in a different category when he wants a local fone QSO with his nearest Ham, who most likely is situated between 20 and 50 miles distant, so he has to use a band which will give a QSA5 signal consistently over this distance.

The DX key-puncher, who is participating in contests, certainly likes to have his QSO's as free from QRM as possible; to achieve this object, the only logical thing remains for fone to be prohibited on frequencies, and divide the remaining bands as suggested, in fairness to both fone and CW men alike. On the other hand, the fone man does not like his QSO spoilt by the QRM caused by a T3 CW signal, which is often heard on all bands.

We would conclude by reminding you that the reprisals suggested in your Editorial can be made to work BOTH WAYS.

G. W. Manning, VK3XJ.  
A. R. Williams, VK3WE.  
J. Stevens, VK3ZK.  
J. Colthrup, VK3FL.  
E. Perkins, VK3EP.  
H. R. James, VK3LH.

Per G. W. Manning.

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Editor, Amateur Radio,

Dear OM,

Have just seen the results of the Centenary contest.

I notice under the heading "Receiving Station Logs," Australia, there is listed the scores of three "loyal" Australians! Why only three? As I look through the list of entries, and see where Germany had twenty, England six, and Holland two, I almost weep! To think, that a contest committee arranged a contest, and then received only three entries from hundreds of persons qualified enough to lend practical support!

What must our fellow "Receivers" in Germany, England, Holland, France, Austria, and U.S.A. think? In my opinion, they think that here in Australia we have a minute number of "Receiving Stations." This is of course not the case.

Do you want a "Receiving" contest to be included in the next test? Of course you do! It will be a disaster if the sponsors see fit to eliminate the "Receiving" contest in October, but if you do not promise your support in the event, then the blue pencil will sail through "Receiving Contest." Now, come on chaps, make up your minds to pull your weight, and lend support.

Eric Trebilcock,  
BERS—195,  
Postal Staff,  
St. Peters, S.A.

### 28 and 56 MC. Section

(Conducted by VK&JJ.)

There was a marked improvement in 56 m.c. activity around Melbourne during the past month, and several new stations to this band put in an appearance. As a further stimulus to experimental work on 56 m.c., a pair of 2A3 tubes have been donated by Mr. Falkenberg, of Byabuk, and will be awarded to the station producing the best results during August, September and October. Judges were appointed at the August Key Section meeting, and logs will be judged on the five best contacts and amount of experimental work done. Logs must reach the W.I.A. not later than November 30th.

Contacts over more than a few miles on 6 m.c. are still lacking, but it is hoped that, with concerted efforts during the next few weeks, it will be possible to bridge the gaps to the nearer country towns. 3KW at Geelong is running a schedule each Monday evening at 8 p.m., and is using a beam antenna, but no sign of his signals have yet been heard. More country stations are needed on 56 m.c., as no doubt some locations may be found that are ideal, while others may be very poor, but until stations are active they will remain undiscovered. 3KW has now changed to a new QRA, and has had several good phone QSO's with 3DH about 10 miles away. Other Melbourne stations active are 3LG, 3JG, 2ML, 3UK, 3OF, 3MR, 3RS and 3DQ.

### TEN METRES IN N.S.W.

In Sydney and suburbs July was just a slight bit better than June. Early in the month both 2HY and 2LZ worked 4EI, signals being a good R6 at each end. The only other QSO's were between 2LZ and W6VQ, and one during a week-day lunch hour by 2HY with ZL3BN. 3LZ rushed home to do likewise, but alas, the 2LZ was gone!

Of course, 2EP wasn't worried by lack of QSO's, like he will be, say all of us, in VIS, now that he's in VIM! During the month he worked W6VQ (4), X1AY, W9BGJ, W6BNF, W6AAA, VK2LZ, W9KEP, W4AJY (2), W9IFZ, W9NY, W6BNU (2) and W9BVL.

Later information states that VK4EI has worked nothing since 2HY and 2LZ, and that the last QSO 4BB had was in May.

MY regret very much in N.S.W. losing  
2EP, but he has left us a rather high  
pinnacle of achievement at which to aim.  
As a reporter of news to VK2 28 m.c.  
H.Q. was unique, never missing a  
week without a report even if no results  
were obtained. If only all other ten m.c.  
enthusiasts would do likewise it would  
make this section much more interesting.  
VK2YC.

### LAST MONTH OF CONTEST.

The International 28 m.c. contest, organised by the R.S.G.B., concludes on September 30th, and entry logs must reach the R.S.G.B. by the end of November. It is imperative that as many logs as possible be sent, as it is an excellent

**Federal and Victorian Q.S.L.  
Bureau**

By VK3R.J.



Log forms and printed rules for the Combined International DX Contest, to be staged by the W.I.A. (Victorian Division) in conjunction with the N.Z.A.R.T. during October, may be had on application to this Bureau.

The second International CW Relay Competition, held by the Rede Dos Emissores Portugueses (R.E.P. Portugal), was held from July 6th to 21st. Advice of this contest invariably arrives after the contest is over.

The QSL Bureau for Egypt (SU), Palestine (ZC) and the Sudan (ST), is now being managed by Frank H. Pettitt (SU1SG), whose address is:—Catholic Club, Mustapha Barracks, Alexandria, Egypt. Interstate QSL Managers please note.

Mr. Clay Burnard, of San Francisco, advises that he has reserved 2000 photographs of the new Oakland bridge over San Francisco Bay for VK amateurs. These pictures measure 24 inches square, 1/2 inch thick, and should make an attractive ornament on any shack wall. Requests for these photographs should be addressed to Mr. Clay Burnard, care Golden Gate and Highway District, 111 Sutter Street, San Francisco, Cal., U.S.A. No postage is required for the photograph.

Cards are on hand at the Victorian Bureau, 23 Landale Street, Box Hill, for the following VK's. Postage will ensure their prompt despatch:—AS, BK, BL, BS, BX, CA, CW, DD, DS, DY, EG, ST, EW, FC, FG, FM, FN, GE, GM, GV, GW, HE, HH, JL, JR, JT, JW, KA, KL, KO, KY, LG, LE, LF, LM, LP, LT, LY, NM, NA, OF, OJ, OU, PS, PP, QX, QZ, SP, TY, UJ, UY, WN, WM, WX, XB, XR, XU, XK, YR, ZF, ZJ, ZK, ZL, ZR, ZX, EVANS, ADAMS, DINAN, JONES, BURSTON, WILLIAMS.

R. E. JONES.  
Federal QSL Manager.

chance to let overseas enthusiasts know that we VK's are doing our share in U.H.F. development. If desired, logs may be sent to 2YC or 3JJ immediately at the close, and will be forwarded on. The rules appeared in October, 1934, "A.R."

Points scored during July were as follows:—VK2EP 851, VK2LZ 80, VK2HY 22, VK4EI 12.

## Divisional Notes

### NOTES FROM HEADQUARTERS. W.I.A. (N.S.W. DIVISION).

The August monthly meeting of the N.S.W. Division was held as usual at the Y.M.C.A. Visitors included 2VN and 2AL. The meeting was well attended.

Amateurs were asked to keep an accurate check as regards frequency and time of all commercial stations operating in amateur bands, with a view to having such stations removed.

The international aspects of amateur radio were discussed, and consideration given to I.A.R.U. proposals.

Two new services were announced, firstly, a standard frequency check and transmission standards, and, secondly, the inauguration of a new monthly meeting on the first Monday in each month. The meeting is entirely of a technical nature, with no business transactions.

A short lecture on Amateur Super-hets was delivered by W. E. C. Bischoff (VK2LZ). Following on this VK2JX spoke on laboratory practice. Both discussions were much appreciated.

In September the lecturer will be the chief engineer of Stromberg Carlson. Mr. Scott will speak on the Cathode Ray Oscillograph.

Folders for publicity purposes, and also for the use of members, are being printed containing the dates of all meetings till the end of the financial year, and information concerning the Institute.

The Council notes with pleasure the support the W.I.A. is getting from various Radio Clubs and individual experimenters in general. The membership is increasing satisfactorily, and it augurs well for the success of the Institute.

2WS also very good strength and quality, but either has a punk Receiver or has forgotten how to read C.W., as have called untempered times but always N.D. 2XO always has plenty of punch, but must be always altering things, as the quality of the tone varies every few nights.

2JC R6, and nice to listen to.

Using a 3 stage xtal rig with 80 watts input to an 0SA in the final ZL2GN gets R7 from U.S.A.

VK4GG is easily the best VK4 with 4CB next. 4CB is the most consistent VK4. He is on nearly every night. VK's 4LW, 4PK and 4QL are received well here on Sunday mornings.

2OU is on at odd times. Still busy knocking the bugs out of a new six tube super. QRU for now. 73.

### PARRAMATTA AND DISTRICT RADIO CLUB.

(Affiliated with W.I.A.).

This new Club came into being about the middle of last May and has at present a membership of 22, including 5 hams in the persons of VK2BK, VK2QZ, VK2ZT, VK2QC and VK2DK.

At present the meetings are held at the QRA of 2QC and would welcome any visitors from other Radio Clubs. Lectures for members preparing for their A.O.P.C. are in the capable hands of 2QZ, and the Morse in-

structors are 2ZT and 2QC. The office-bearers of the Club are:—President, Mr. Best, sm.; Vice-President, VK2BK; Secretary, VK2ZT; Treasurer and Publicity Officer, Les. Grainge; Social Secretary, VK2QC.

The Secretary would welcome any ideas or suggestions from other Clubs that would be beneficial to the Parramatta Club.

VK2DK is very busy at present building new "rigs" and, from all we hear, they seem to be very fit and 2ZT will have to watch his step and the DX.

VK2ZT has been QRL erecting a new aerial, adding about 10ft. to his "stick" and is out hot and strong after DX, and from all reports he seems to be getting it.

VK2BJ, known to the Club as "haywire," has not been so active lately, but in spite of the "haywire" he gets out just the same, judging by the QSL wall-paper and a WAC.

The Club is not financial as yet to own its own transmitter, but if the keenness of the members is any criterion, it won't be long now.

### LAKEMBA RADIO CLUB (VK2LE).

(Affiliated with W.I.A., N.S.W. Division.)

The meetings of the Club are held every second Tuesday at the new Club rooms, 334 Canterbury Road, Hurstville Park.

The recent 5 and 40 metre relay test proved quite successful, many interstate reports being received. The 6 metre station, operated by 2OD, on board a car, hooked up with 2QX, who fed the output of his Receiver to the amplifiers of 2LR (40 m.x.), operated by 2DL, these signals in turn being received by 2XZ on 40 metres. 2XZ, replying to 2OD, was picked up on a super at 2LR, the output being fed to the 5 m.x. transmitter, operated by 2QX and finally received by 2OD in the car.

At a recent meeting a two way 5 m.x. demonstration was given between the Clubrooms and 2OD's residence. Mr. Taylor, a prospective new member, who had been nominated the previous meeting, remained with 2OD, and was duly accepted as a new member of the Club, the necessary speeches being made over the 5 m.x. radiophone.

Since moving to the new Clubrooms the attendance at general meetings has improved, there being 35 present on the last occasion.

A Morse class has been started for those who wish to improve their code. These classes are held on each alternate Tuesday, between Club meetings. All further enquiries will be answered by the Hon. Secretary at the above address.

### NEWCASTLE CLUB NOTES.

(By VK2RG.)

Great interest is being taken by Club members in the weekly DX contest, which will be a point-score over 12 weeks.

Results of the recent Club half-yearly DX contest, on a handicap basis, again proved the superiority of 2ZC in this field. Competing from the scratch mark he netted 2,592 points in the allotted twelve hours, making 21 contacts with 8 countries. 2DG put up a creditable performance by coming second with 2,116 points, 4 countries and 8 QSO's.

"MT was a close third with 2,105 points, and 2FN was fourth.

2FN is changing his rig from 47-45 to 58-210, and the finished job will present a neat and professional appearance. Tritet control is almost universal in this district now, 2UF being the only ham still using the old 47. But it won't be long, Frank says. His long awaited superbet is under way, we believe. 2MT is also QRL, building a super.

## STANDARD FREQUENCY TRANSMISSIONS.

VK2OC, of Wyong, will be commencing W.I.A. Frequency Services on Sunday, the 15th September.

10 a.m. till 10.30 will consist of transmission on 7,000 kc, and from 10.30 till 11 a.m. checks on frequency will be given to any Stations calling VK2OC. This service will be continued on all following Sundays.

Further particulars of this service will be available in later issues.

Amateurs using S.E. transmitters should especially make use of these standards as Stations have been reported well outside the bottom of the 7 m.c. band and interfering with commercial services.

## 5MX FIELD DAY.

The first 5 m.x. Field, held in N.S.W., and possibly in Australia, was run by the W.I.A. at Wyong, on Sunday, the 18th of August.

Wyong is ideally situated for field day operations; some 68 miles north of Sydney it is in a central position as Amateurs can travel down from Newcastle and surrounding districts.

The field day, as it will be described, proved exceptionally successful, and the fact that it was conducted on 5 m.x. seemed to create a new spirit in field days.

Seven cars started from Sydney and three came down from Newcastle, the final attendance being just around 50. VK2NO had his car installed with a complete 5 m.x. Station, and during the run from his QRA to the meeting he successfully contacted many Sydney stations. The transmitter consisted of a pair of 89's modulated by a 42.

The Secretary, Bob Powers', car, had a very QRP rig aboard with a B408, modulated by a B408 and about point 7 of a watt input. Successful duplex telephony between 2NO and 2W1 in the two cars was carried out at all speeds up to 50 m.p.h. Some peculiar effects were noted on the trip up, Sydney station being QSO'd by 2NO's portable till Hornsby, after that 2JU reports 2NO audible till his car was on the final run down to Kangaroo Point Ferry.

Contacts between the cars were successful and the only variation in signals over a 200 yard range was one when passing over Turramurra Railway bridge when, with a range of only 100 feet, the signals faded completely out. Where rounding curves the signals often dropped when the back car was obscured from view.

The majority of the Amateurs reached Wyong by 12.30, although it took quite a little effort to break away from the Gosford Hotel in cases. Seven cars arrived from Sydney. One contained 2IC, 2OD, 2OW and others, another 2YP, 2AG, 9BA and others.

Lunch was partaken of just about 1.15 p.m. and the transmitter that was to be hidden was taken out about 1.45, and was timed to commence operations at 2.15 p.m. within a radius of four miles from the Wyong showground, which was the starting place. The 5 m.x. transmitter of VK2NO started

right on time and an R8 signal was audible at the showground, then the fun commenced.

Those that hadn't tried out their gear were very dubious whether a half wave antenna had any directional properties when coupled to an ordinary super-regenerative. However, the results proved that greater accuracy as far as D.F. work 5 m.x. proved far better than the more conventional 80 m.x. band.

2ZC, 2SO, 2FN and party found the transmitter in 30 minutes, 2OD, 2IC, 2OW and party were second, in 43 minutes; and 2ZL, 2JX, Bob Power and 2HZ party were third in 45 minutes. These times broke all previous records on the 80 m.x. band and one thinks that most of those in attendance were dubious that they would even locate the transmitter. The transmitter was about a mile and a half air line away and extremely well hidden and by road was a detour. The transmitter closed down about 3 p.m. and the cars trooped back to the showground for a ragchew and tea.

The gear used by the winner, 2ZC, was extremely well built, everything completely shielded except the 'phone leads and the directional properties of a half wave antenna rotated were accurate to 10 degrees.

Tea was announced at 4.30 p.m. when the usual speeches were made and the prize-winners were announced. 2ZC and party a 955 acorn tube, and second, 2OD and party, 10/6, a prize kindly donated by Mr. Sutton.

Of the highlights possibly 2OC's beautiful super bet was the best—2QF's argument with a post—2ZL's behaviour on the trip back and not forgetting the Duke of Kent or York (?) in 2AG's car. The Wyong hotel ran out of beer at about 3 p.m. Of course, the Amateurs weren't responsible.

Thanks is extended to the Wyong gang 2OC, 2TX, 2XP, and now 2PF, for making arrangements to ensure the success of the field day.

## NORTH SHORE NOTES. W.I.A. (N.S.W. DIVISION).

By VK3VQ.

The past month has brought many changes in the three prominent Bands: namely 20, 40 and 80 metres. Especially on the higher frequencies have conditions been observed to be changing on 14 mc for example, signals from the U.S.A. are fading out in the afternoons and their place is being filled by Europeans. Signals from such countries as HB, OH, SP, G and F, are heard at good strength from 5 p.m. onwards. 7 mc is also a much improved Band and provides quite a few European contacts for the early mornings, besides the usual quota of Yanks. To those seekers after W.A.C. it would be a solid scheme to look for HK1AA on 7,150 k.c. each night with a Xdc note. His sigs are usually R7 and make good copy, 80 m.c. is falling off and the boys are migrating to the higher frequencies. As for 5 and 10 mc. enough has already been said elsewhere in this issue. Sufficient to say, that 5 m.x. will, in time, prove one of the greatest amateur DX bands—signals from W having been heard in G1 ! !

And now for the scandal and blackmail. Don. 2DR has returned from VK5 and left behind him a broken heart or, at least, that's the general impression. Hi! He is now definitely rebuilding. (What, the heart?—Ed.) Young Dave has gone to the pack. Literally I mean. Has taken to dancing classes and wanders round murmuring "Hot-che-cha." Hi! It's a bad sign; but still 5ME is planning a new 90ft. stick and so the YL's will have a battle to keep him

## Amateur Radio

off the air. Hi! 2SV, of Roseville, has not been on so frequently, but his Heising fone gets him many good reports. Pop down and see me some time, Bill. "The Tavern Knight"—2HG is holding the fort in Chatawood on 7 m.c. with 2BJ doing good work on 80 m.x. Jack is rather QRL studies, but still manages to chew the fat with the boys. 2BJ certainly never suffers from a sore throat and can talk for hours on end. Hi! The Naremburn horror—2SS—continues his good work on 7 m.c. Bob has the best S.E. sig. that I've heard and combines that with good operating—so does not lack for QSO's. Con 2LZ, has staged a comeback to 40 m.c. and causes a mild stampede in the U.S.A. His partner in crime, 2HY, is also back on 7 m.c., and believe me, Roy, it's a fb T9 sig. that you shove out. 2WW swotting hard for accountability and does not have much time for radio. Watch Bill's smoke when the exams are over. 2KA silent. Snap out of it. Paul o.b.—your new call of 2NV would sound the berries on the air again. What about it? 2VG and 2HA hold chess meetings and seem to knock no end of fun out of it. 2VG is thinking of a big stick to hold his Zepp and, no doubt, prays that it will not go the way of the last 60 footer. George 2VP has broken in to the DX racket by working all States of W—fb for 46's. 2VM accuses 2VQ of being a bad moral influence, and so has decided to move out of the danger zone. E. Keith has built new speech equipment on a steel chassis, and it certainly looks the goods. Let's know your new QRA o.b. Hi! 2KJ on again and agitates 7 m.c. with a 203A in the end of a 3 stage perk. Sounds quite a reasonable sig., too. This humble scribe—2VQ—QRL accepting tennis challenges as far afield as 5LD. Hi! Garn! Launae, you're not nearly good enough. Also, QRL training the YL in the use of the P.M.G. mike, with fair to gloomy results. Hi! The old Bill 2HZ romps in and makes my detector tube look silly. Bill has tried the Jones 63 osc tube with great success and swears by it as a co. He says that it puts the 59 and 47 types in the proverbial shade—only Bill didn't say proverbial. Hi! Hi! Catch on? 2VN is a newcomer, but still that did not prevent him working a few Yanks on his two stage xtal, 47co, 46 doubling to the s.w.f. antenna. 2JE has a nice QSL card, and also plenty of hot records! Whew! Ask him to play "I want to be a nudist"! Hi! I can't see you getting past Peter at the Pearly Gate, Bill OM.

In North Sydney 2TD has a really fine fone outfit going on 7 m.c., and is also hard at work on 5 m.c. FB Norm, you old sinner. Jim 2YC, too QRL, with the latest addition to his family to worry about. Ham radio is in a new QRA now and hears the DX like nobody's business. Taking a running jump and a dive we land in Mosman in time to hear 2PV working three more Yanks on his SE tens. fb Pete—you're getting 2SS worried now. Hi! Gang! If you want any help in putting up aerals don't ask 2PV, 2SS or 2VQ. Ask Harry Whyte-Meach the why and wherefore. Hi!

2XC dead to the world. Ian is QRL at the Varsity though, so that may be the reason. Alec, 2FM, still fighting the BCL's and is training his Alsatian now to fix 'em. Hi! 2HI wanders round like a lost soul as he will be if he hits another tram! Fred is very QRL at work though, and he has clicked a good job so that does not worry him. FB.O.B. I am indebted to 2IX for dope on the Manly urgers. It would appear that the gang generally are rebuilding, the more consistent being 2HF, 2BS, 2AX, 2FF and 2IX. 2MR

The Manly Radio Club are scouting round for a new QRA, and so is temporarily off the air. 2BS and YL have a tight squeeze to fit in Bill's car, but still they don't appear to mind that. Hi! 2IX playing cowboys and Injuns with the BCL's. You will get out of that state in time, OM. Hi! 2QK making a decent job of his new rig and should be on by the time these notes are published. Old Tom 2KM still fools around with MOPA and believe you me, the resultant sig. cannot be faulted. 2FF, at Deewhy, is a fone station and puts out quite fair stuff. Gets good reports from Interstate.

Well, that I think is that, and so here are some good signals heard on 7 m.c. during the last month. 2EW P.M.G. op., at Gladsville, who often works 2NF, also of the Looney village. 2XJ and 2EO are another pair who make the DX go all gooey like! Dave 2EO has worked 87 countries this year. 3DQ, whose fone reaches R9 in VIS is a great ragchewer and a nice chap at the same time. 5LD and 5LP shove R9 sigs over here. Gang, I'm sure all of you will wish 5LP the best of luck in the next month. Laurie has been in bed for 11 years with spine trouble and now there is a chance of recovery. Good luck, OM. 8EG, Old Ivan, is never missed on 7 m.c.—a 203A doing the trick.

Well, gang, cheerio until next month, and plenty of DX.

### ZONE 3 NOTES. W.I.A. (N.S.W. DIVISION).

By VK2OU.

Conditions on 80 metres during the past month have been pretty fair, although QRN has been unusually heavy at times. Some nights WCW and fone stations come through FB, but other times are inaudible. W6JGA was the best C.W. station and W6EQ1 the best fone.

2L fones are generally good, and plentiful. 2KH is now in Zone 3, although I have not met him yet. He is QRL on the National Relay Station, at Lawrence, about 2 miles from my QRA.

2CJ is also a newcomer, QRA. W. Johnstone, Oliver Street, Grafton. He uses 3 stage MOPA 46 T.P.T.G. osc. 46 buffer and a pair of 46's in P.A. and certainly makes a noise here. 2ZM, also of Grafton, is back again using MOPA 46 T.P.T.G. osc. 46 first and second buffer, and a 210 PA. For fone a pair of 50's in PP modulate the 210. Speech amp. consists of 27 driving a pair of 27's in PP. 2NY was heard once at R9 and sounded very much like xtal.

2GI has also returned to the fold and is putting 1 watt into a B406 on 40 and 80. Gets out well on 40 but not so well on 80. Bemoans the fact that the 240 A.C. only stretched as far as his neighbours. 2BI, of Lismore, R9 on fone. Fairly good quality. He is the Zone 3 relay expert. For fuller details consult 2KR. What about that W. Cec? Hi!

## Victorian Division

### KEY SECTION NOTES. (By C. WOODWARD.) VX8YO.

At the August meeting of the Key Section, the new Chairman, Mr. Campbell, VK8MR, opened proceedings amidst great applause.

A pleasant surprise was introduced in the shape of a pair of 2A's, donated by Mr. Falkenburg, of Byaduk, for competition amongst the members. It was decided to

award the trophy to the member who has the best five contacts on 56 m.c. before October 31, 1935. It is understood that quite a number of new stations will be on the air on 56 m.c. immediately with the intention of claiming the 2A's.

Mr. Cunningham, VK3ML, who recently returned from a trip to Western Australia, gave a most interesting account of his adventures among the VK's. It seems that W.A.C. is easy EXCEPT South America. Nothing unusual about that.

Mr. De Cure, VK3WL, who is transferring to South Australia, was given a cordial farewell by the section.

After the meeting 3WL was taken off to supper, and to celebrate, but the only result was that 3OC backed his car into a telegraph pole!

Conditions on the 40 and 20 metre bands have not altered much in the last month, although 3MR reported hearing the G's at R8 and on 20 metres about 1 a.m., and considered that they were the loudest that he has ever heard them.

VK3RJ is now back in harness again. The interest in beam antennae is spreading. 3OP has now installed on for 14 m.c. and is delighted with the results.

The new transmitter at 3LX is finished and working well.

Illness has kept 3DP off the air for a few weeks, but he is now quite well and very active again.

A new mast is up at 3RX, whilst 3MR has turned his attention to 56 m.c.

3OC has not been heard for some weeks owing to a very busy period. There is also a rumour of another "mystery tube" in the offing.

3YO is practising on a "bug." You heard! It was strange to hear 3HC on 7 m.c. the first time in years.

Quite a number of stations are off the air preparing their gear for the coming International DX contest, and interest is rising as the weeks go by.

It is estimated that there will be many more stations in the test this year, and S.S. supers, Beam Antennae, and "Bugs" are becoming the vogue.

## PHONE SECTION NOTES.

(By IVOR MORGAN, VK3DH.)

The meeting of the above section, the first for the new financial year, was well attended. Falling on July 30, the last gathering of members before the special transmission of August 18, the competition arranged by the New Zealand DX Club was discussed and all necessary arrangements for times of transmissions, stations who would participate, etc., were made.

The competition of last year was, we must admit, from the point of view of the New Zealanders, not a success. This was due to the complicated technical details which we drew up, considering only the system our judges had used in our last competition. We were not thinking of the difficulties the DX'ers in New Zealand might experience in following the complicated technical rules for judging, or being able to hear the average station sufficiently well to allocate points for all the several details asked for the competition committee, for instance, depth of modulation, quality of sound or steadiness of carrier.

The average DX'er there was in the game only because he was interested in getting verifications from as many broadcasting stations in any part of the world as possible

and did not study the technicalities of transmission.

Well, now this year's competition is being run by the New Zealand DX Club, on their own lines. Other than 3TH being the judge, we have nothing to arrange or do except supply the necessary "bait" for the DX'ers, who are "fishing."

By the time this appears in "Amateur Radio" the aforementioned competition will have been staged, as a matter of fact, since I am late in sending in the notes, I am able to report that from the Victorian viewpoint, all went off satisfactorily—we can only hope that the conditions for reception in New Zealand were good.

This meeting was the first under the new scheme of allocations of frequencies, whereby all stations receive preference according to their position on the order of merit. A few members appeared to think that this scheme in practice was not all that they thought it would be—notably, 3RI gave notice that they would move that the motion, "all stations be given preference of frequencies and sessions according to their position on the order of merit," which was adopted in July, be rescinded.

The smoke night was reported on as being a great success—64 being present, all of whom, without a doubt, thoroughly enjoyed themselves. I understand that a net loss of 115 was recorded. A vote of thanks was passed on to 3RO and committee, also Healings, who so generously supplied the very effective tickets.

Regarding the separate and individual doings of the 'phone gang:—

3FW has installed a new speech amplifier system, which certainly is doing a good job: '24 as triode, -27, and -50's.

DH happened to walk into a well-known radio store in Camberwell last week (free ad.) and had the pleasure of finding 3XL there making some purchases. In the course of conversation XL related how he had overcome a very severe case of QRM to a next door BCL (your pardon, XI-). The interference caused to this crystal receiver was complete and hopeless whenever XL went on the air 20 m.c., 40 m.c., or 200 m.c.—so this is what was done. (See 3RX, he is in trouble).

One only loud speaker was transferred to the crystal set QRA by XL, complete with a five-way cable. XL returned to shack having first secured one end of five-way cable with crystal owner. The cable having been laid over fences, house-tops, etc., was then linked up. One pair of lines connected remote speaker with XI—BCL receiver and other three lines wired up with two buzzers and two press buttons, one of each at either end.

Procedure:—XI. wishes to transmit, presses buzzer. BCL at other end replies with "dit dit." meaning O.K. Then he sends a signal made up of a number of dots, from one to six, representing six local stations, commencing at the high frequency end of the band. Whichever number is received by 3L, that station is duly tuned in, and of course, is heard by the BCL in his remote speaker.

I understand from Harold now that the "Crystal Listener" has taken such a liking to the speaker that he has asked for a quote on a 5 "Probe" super. Good luck, Harold.

## SHORT WAVE GROUP NOTES.

(By G. W. MANNING, VK3XJ.)

Progress with 5 metre receivers is being maintained amongst members and ere long.

when definite schedules have been arranged by the transmitting members of the Division, something in the way of useful data will be obtained.

3XJ has built himself a transceiver, using a Cosor 220B modulated by a 32, and is able to get tons of rf both from it in the receiver and transmitter positions. Schedules are being arranged with 3HF and 3BH, who are at present active on this band, so any other members who reside in the Moonee Ponds, Ascot Vale and Essendon districts are requested to keep a watch for signals from these stations. (Please let the keypunchers know when you are ready and schedules will be arranged.—Ed.).

Mr. Burdekin, one of our most energetic members, is at the present time playing around with "anti-noise" antennas. Let's have some dope on it at our next meeting, Burdie!

The group extend to their ever popular chairman, Mr. Arthur Mildern, congratulations on his election to Council. VK3XJ has been appointed Section delegate to Council for the ensuing year.

3WQ has been heard working fone on 80 metre channels during the last few weeks. It is also rumoured that the world-famed, VK3JH, has actually worked a couple of locals on 40 metres, using CW, of course. When are you thinking of using a certain system of modulation, Bob?

Our Investigation Officer, Mr. Sonos, is seriously considering his present ORA to somewhere nearer the city. If Bill happens to take an abode in a QRM area, it will give him ample scope to co-operate with Burdie in his "anti-noise" antenna experiments. (Bill, we understand, is transferring to the country very soon.—Ed.).

Maurie Quick sat at the last P.M.G.'s examination for an A.O.P.C., but up to the time of going to print, the much looked for long envelope, or its small brother, has not been delivered to Maurie's address. Best of luck, and the gang hope it is the long one that eventually finds its way to you, Maurie. It is rumoured that Ben, Potter and Ronnie Higginbotham has gone QYL, so am unable to publish progress reports.

No more news for the present, gang, so cheerio and 73's until next month.

## NORTH-WESTERN NOTES.

(By VK3CE.)

The north-western gang seem to be relaxing after recent activities, or is it in readiness for the fast approaching contest? However, the fact remains that all stations have been practically inactive over the past month, even 3KR has nothing to report by way of DX, but tells us that there is a big chance of Kerang changing over its power supply to A.C., and both Ken, and "Treb" STL are slated at the prospective change.

Murray, 3OR, is on the air again with full power, having replaced his 32 volt bank of house lighting batts, and also has his new speech amp. in action. It is powered from a small generator.

Herb, 3NN, way over at Yanac, has his heater installed and finds it fb for early Sunday morning QSOs.

From Callawadda comes the news that 3HQ is visiting VK2, so look up the Wagga gang when passing through to VIS. 3HM, like the rest of us, has only had a few local QSO's of late.

Allan, 3HL, has now got his 80 m.x. fone rig perking very nicely. Understand, he is now using Helsing mod, congrats anyway OM, your fone comes through here in fine style.

He states he has found conditions on the higher frequencies rather dead, but has managed to work a few W's just to keep his hand in.

3ZK has been working ZL when conditions permitted, and heard also in local rag chews.

SWE has his SW super working O.K., but has been having trouble with it at times owing to fluctuations in power. Nothing has been heard of Alf., 3CH, or Herb., 3LH. Guess the former is kept busy keeping power and light, up to the locals, and the latter removing ailments from their BC RX's.

Please, gang, give me a call, or drop a few lines, and let me have the dope on your activities, as I am to QRL to visit you all personally each month to obtain the fuel for these notes. Anxious in anticipation, CUL is 73's.

## GOULBURN VALLEY NOTES.

(By 3DW.)

The writer regrets the loss of G.V. notes last month, due solely to the QSO with OM 'flu and herewith thanks the gang for their good wishes for the speedy recovery, same eventuated.

Five meters is receiving some attention in Shepparton, 3SN and Roy Millidge have constructed one outfit which is at present undergoing tests, and not having the mate to this ready as yet, there is, of course, no data available as to its lone performance. 3SN has been badly bitten by the experimental bug, and all the nice rigs he recently owned have been reduced to haywire. Roy Millidge expects to sit for next A.O.P.C. exam, and as he is an old ham should not find any difficulty in supplying the RI with the necessary answers. The two fellows, aforementioned, recently received a "Receiver" (?) from a "Ham" (?) (Yep, a licensed one at that) with a letter asking why it wouldn't gee? Stage RF, DET, 2 audio (the idea was to operate a loud speaker, I believe). Maybe the principle involved is new? . . . however, the boys found the pentode output wired back to the grid of the first audio stage, and after correcting this they removed enough resistors and condensers from the RF stage to start on another receiver. Hi! The old saying is adaptable, "Him as has gets!" Yep, our ham friend got, but, oh, boy, who wanted what he got, anyway? Hi! Better luck next effort, OM.

3DR is at last active and has been on the air pretty consistently of late, also started up on his RAAFWR allocation. Has nothing new to report, but Bill's a dark horse, so look out.

3DW spent fortnight away recently; few days in VIM and regrets time so limited he was unable visit any of the fraternity. Rest of the time spent at Ravenswood, 15 miles south of Bendigo, on the main VIM highway. Erected portable TNT on 7 m.c., using PM4 osc with one watt input from "B" batts, and succeeded in Qso'ing VK6LK, 5LY and 5MK. Q5 R6 reports when Adelaide QRM subsided. Also had call from VK2SO but missed the contact on account of forgetting to throw the antenna switch. Thanks, indeed, chaps for the fb yarns. RX was 2 tube using A630's. Antenna was 62 feet long (up a pine tree) and voltage fed via a GR384 wavemeter, which happened to be the most convenient thing to take along, and also served as an excellent frequency check. 3EF, at Rochester, has the AC in the house, but at the present time is too busy making money with new AC BCL sets to get the rig in action. 3ZK sent along his notes last month as usual? . . . my fault this time,

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Jimmy; but you have forgotten me this time! However, the pick from last month is to the effect that Roy, of 3GE, has started poultry farming, but gassed about 30 of 100 chickens he purchased. (Make a crystal oven out of it, our crystals stand anything in the way of gas.—Ed.).

What's wrong with the incubator, Roy? Junior Op. now going under his own power and getting out fairly well. Hi! Hi! Roy will need a sound proof shack to cut out the local QRM, when the modulation percentage

Say, Gang, did you notice 3UK has allotted him self HLZUK? . . . same to you, Vaughan, old scout. 73 boys . . . be-er up, and doing!

## WESTERN DISTRICT NOTES.

### 3HG—30W.

Activities in this district seem to be at a very low ebb, due, no doubt, to the cold weather and very patchy conditions. The good DX conditions on 14 m.c. have fallen away, 7 m.c. is very poor and 3.5 m.c. the worst it has been for years. As the eleven year cycle progresses 14 m.c. is improving, but 3.5 m.c. is getting steadily worse each winter, in this district anyway.

3GC and 3NK still active, the former getting good reports from W on 7 m.c. 3GQ says he is going to QRP for the contest in October, using less than ten watts. He will have a keen rival in 3PG, who is conducting numerous experiments with different antennas and intends going into this contest all out to win the handicap section.

3NQ, self-excited addict, is at last converted to c.e., all those who grind crystals please note!

3KJ is rebuilding to three stage crystal and will definitely be on the air soon. He has never been heard here, although he has had his licence for several years.

3NN has greatly improved his 'phone with the aid of a Harle microphone, and a new three-stage speech amplifier.

3HL heard on 3.5 m.c. the other night, the first time he has been heard on this band for a long time, except for reserve work and Sunday schedules.

3OS is having his genny rewound, so as it can be used as a dynamotor running from the 32-volt "mains." Rob is still getting out very well with a couple of sick B batteries as power supply.

3TA continues his 200 metre transmissions. SDX has installed some very good gear for his publicity work, including a crystal mike, double turntable, faders, etc.

## Queensland Division

(By Radio from VK4AW, via VK3ZC, VK3UK.)

At the August meeting of the Queensland Division, before a large attendance of members and students, Mr. A. E. Walz delivered a talk on reminiscences, starting with early activities and leading up to present day radio work. At the September meeting a talk on X-Ray is to be delivered by Mr. Furer, a well-known local X-Ray authority. Since our policy of providing regular monthly lectures a marked increase in attendances has been noticed, and with the proposed lectures for future meetings, large attendances will continue. Two student classes are at present being conducted under the instruction of Mr. P. Kelly, and H. Scholz, while C. Miller and W. Hepton take charge of the Morse practice. The official station, 4WI, continues to con-

duct Sunday evening broadcasts on 3.5 m.c. to country members, and also a slow Morse session between 7 p.m. and 9 p.m.

4MC has acquired a new two tube electron coupled AC receiver, and has worked two Yanks and OM2RX, all reporting R7 to 9. He has quite a good brand of local QRM from Neon signals.

4WT is now a 60 Tritet convert, using 2 buffer 46 stages and finishing with a pair of 210's recently acquired, as the 46's kept giving up the ghost owing to lead flashover and consequent glass puncture. Is using capacitive link coupling to advantage between the last buffer and final stage.

4RY has been holidaying in Toowoomba again, where it is so cold that crystals have to be tickled to get them to oscillate at 8 a.m. at the local B class station.

4CG, of the previously mentioned town, has recently joined the ranks of responsible citizens, having acquired a YF. Congrats. Chiff, OM.

4JB has packed up and gone west again for a few months to Roma classing the woolly coats from the sheep.

4RQ, from Longreach, is at present in VIB for the Exhibition, likewise 4GA from Quamby, who reports several VIB hams good strength up there in the back of beyond.

4EI and 4JF seem to have been the star performers during the recent VK4ZL contest, being, so far as can be ascertained at present, well ahead of the remainder of the contestants. However, final results will appear in the next issue of "Amateur Radio."

4KH has been badly bitten by the single signal super bug, and is seriously considering building one of these animals to sort out the hash on 40 metres.

4LM just returned home on hols from study in Sydney, where he dissects frogs' legs, etc., and visits a few ham sharks during his spare time.

Both 4CB and 4GC are using good quality fone on 80 metres and romp in well in VIB. Both stations, we understand, are using crystal mikes.

58 m.c. activity has taken a new lease of life during the past six months in VK4. Several country hams are interested and have complete stations working; namely 4BE, 4CU, 4XN, 4AF, 4TY. Recently the boys in VIB put up a new VK DX record, that being a duplex 'phone contact with an aeroplane over a distance of 103 miles. We understand the VK2 gang are now going to it and we wish them luck, although just as a little hint, VK4 has a bit more up their sleeves. Address all correspondence for VK4 Division to Box 1524V, G.P.O., Brisbane.

## South Australian Division

(By ERIC HALLIDAY, VK5FW.)

Doings at the Institute during the last month have been rather quiet, three weeks passing without a single meeting night.

The students' lectures are now in full swing. They are being given by Mr. A. Taylor, VK5AT, and so far there has been an average attendance of about 40. Mr. Taylor intends to make this series of lectures as complete as possible, and for this reason council has decided to let him spread the lectures over a period of six months.

The students' transmitter—VK5WI Junior—is now on the air and is available whenever the rooms are open. The perk, which was built by 5MD, is a TNT using a 45 with about 600 volts on its plate.



During the recent VK6 traffic contest 5W1 Junior was on the air every Sunday with one of the students on the key. They managed to collect quite a few points, too.

The institute's big transmitter should have also been on to help swell the numbers, but was conspicuous by its absence. It is about time the powers that are in charge of the institute made this transmitter available to the members. Half of them have never even been able to see it, let alone have a pound on the key. At the present time 5W1 is more a fable than a reality to most members.

It is intended to arrange a field day for Eight Hours Day, October 9. At a recent meeting VK5WP gave the chaps a description of the field day that was held by the VK7's during the last convention. Those southerners certainly know how to make a success of their outings. It is doubtful whether we, with our large membership, will be able to do as good. The last couple of outings have been miserable failures.

Let's get together and make up for it by making this field day a brilliant success. What about it, chaps?

It's going to be held in cars and will probably be on the 80 m. band. Get busy right away with those receivers.

A lecture will be given a couple of weeks before the field day on how to make a small portable receiver, suitable for the day. This should be of interest to those who have not been in previous field tests.

## MORE VK5 NOTES.

(By 5LG.)

Who said 5JH was dead? He turned up at WIA the other night, so business must be booming fb, Vis.

5WP also returned to the fold after a visit to Tattsmania.

5MZ—Jack still hooks 'em on 40 and 20, but forgets the rules in the tests. Hi!

5AT certainly has the low down on type 46. Hm!

5LB says he'd be happy if his feet were as hot as his final tank. Hi!

5WW and 5RT are in charge of the WIA students' perk, in VK5 test.

5ZX sick of 20, eh? Too much or too little, DX?

5JC has tritet doublers. What next?

5WP, 58U and 5JO are going to hid a perker for the boys in the coming VK5 field day. If that's all they hide, I'm a bad hummer.

5BM very prehistoric signal, worse than worse. Worse than AC in fact.

5ZY three-stage xtal, sounds like AC on everything to me, for 'evens sake, Keith, don't try to modulate that noise.

5WD allowed a ham to bluff him from NDC report to DC. Oh, boys, do be truthful.

5FW will soon be baldheaded. Eric has started to build a PA for his rig.

5LN fone on 40, and it's not bad, either.

5RY sounds fb here. Extal, of course.

5LG, the lure of 80 m.x. fone has called, weird noises are now heard at the cop shop, and they don't come from the cells either. Hi!

A "pirate" "I.W.W." unlicensed transmitting fiend, called CQ once too often and the RI answered. If he escapes the usual fine, etc., he will be lucky. It will go hard with him for his ticket now. "Illicit Wireless Wizards" take care, the RI is not the fool you think him, so if you want your ticket take my advice and get a call sign in the legitimate way, it's the easiest in the long run.

(By 5LP.).

VK5AF is the call of Cecil Ives, of 73

Yacca Road, Seacliff; he is using 247 in Hartley, with 10 watts. Hertz antenna, using 2 tube DC RX. His first DX WK6.

BEK5196, Eric Trebilcock, the "Overtone King," has been transferred by the P.M.G. department to Tennants Creek, as op. there, so some more boomers.

VK5BD is a new call for Don. Briggs, of Iona Street, Broadview, using 'TNT' with 46 with 16 watts. RX usual 2 tube electron coupled.

Say, old VK5's old stages, "Just turn back your log books for the last twelve months and see how many of the new chaps you have worked. Give them a call, they would like a QSO."

VK5HR, Bill Heinrich, of Bute, who has a very fb T9 signal, gets out well for his QRP, using 3 watts. But like a lot of country hams has the power supply problem to contend with.

VK5RY, R. C. Yates, of Henley Beach, who is using a C644 in TNT, seems to be having a fair amount of success.

From time to time one hears much about the contests, not being open to non-members of the W.I.A., but our local contest open to non-members, showed the true position—most many starters.

VK5PL, who is now at Iron Knob, hopes to be on the air from there very shortly.

The phone gang, and the CW gang dispute, as to 'phone at night being very quiet of late, but by the sound of things the old wound will soon be opened again.

VK5WK makes a reappearance on the 7 m.c. band again after a long period on 14 MHz.

The students' class was on the breeze, under the call of 5W1, trying to make the contest a success.

Now, gang, it won't be long before our Field Day (Eight Hours Day) is here, so get your receivers ready. Do not leave it until the last minute.

Condx have been very patchy on 7 m.c. They can be heard as early as 2 p.m., VR, W, K6, K4. 14 m.c. has been fairly good, the usual Yank 'phone.

## HAMS AND HAMMING.

Poison Gas Scares in VK1 Nunno 'twas only VKSSU and 5CR QSO cegaspers at W.I.A. the other night, MIM. Congrats are in order, our scribe Eric Halliday now 5FW, congratulations to him and any other not mentioned.

5TR, sez he'd like to brain Doc Heave-side with a 50 condx. Must be crook. Hi!

5RT—Disappointed, Bob? He can only get a dull red blush in his RK20. Hi!

5GR on 14 m.c., trying out new antenna system. Some good dope for Gordon soon, fb.

5KL, rebuilt 4-stages 45 co, 46 fb, 46 buff, 46 pa. Hope it goes.

5RH—New QRA. New perk, new everything. News next month.

5RX—Our QSL'er. QRL talkies and 'fu.

5ZX—802 tritet PP 46 final; fb rig note and ragchew.

5WR—Rich and 20 m.x. DX are inseparable, wish I could snag 'em, O.M. Hi!

5JC—Pumps good fone out, uses 59's. Hope he keeps to the rated voltage. Oh, yeah!

5LB—4-stage on 40, 2-stage, on 80, uses fone and CW. Trying hard to get fone going on 10. He'll do it yet.

6TX—VK5's one and only QRP king. Makes his own batteries. Dope next month.

5YR—Started to explain how heavy rain washed his Aunt Enna out, when he saw the scribe.

5RF is the pet engineer of 5DN. Just ask him about frequency control. Hi!

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5PH—Perc. Hutchings, of Gawler, is hoping to be on next month.

5LG—3-stage XTAL AC RX, nice cosy shack but no DX.

5LP will help to write these notes in future, so give Laurie a shout, chaps.

Here's the rest, this month it has been decided 5FW is to be Editor; 5LG to be Ham Reporter; 5LP to be Ham Reporter. 5FW, Eric Halliday, to handle the W.I.A.

1934/1935

## Tasmanian Division

(By 7PA).

The August general meeting was the first we conducted in the new room in Elizabeth Street, and took place on August 6. The attendance was poor and it is hard to understand why, with so many members on the list, and every month more being added.

Some suggest it is lack of attraction, but we are, to a great extent, up to the members themselves to entice enough to pop in and keep the interest, the present odds are such as to make it almost impossible for the large or four active members to keep the show running, let alone speed it up, so get your seams together, lads, and put your shoulder to it when you have had your think, surely there are some who can conceive some good ideas.

The elementary class, under 7BJ, is progressing very satisfactory, as is the code class.

The receiver has been reconditioned, and a transmitter completed, and with some minor attention to the aerial we should be able to do some QSO-ing soon now.

A big feature of this month was the official meeting of Colonel Gatty, on the afternoon of Monday, August 12, by a small gathering of members. The arrangements were so much rushed that little time was available to notify members, but those who were fortunate enough to be present spent a very interesting time listening to our genial aviator giving details of some of his experiences, and were sorry when the time came for good-bye.

The most interesting item was a description of radio beacon systems used in U.S.A.

At the conclusion of this gathering it was proposed to elect Colonel Gatty an honorary life member of this division, and when acquainted with the proposition he expressed his pleasure in accepting.

At a council meeting the next evening this matter was passed to go before the next general meeting, and I have no hesitation in saying that it will be accepted unanimously by all.

On Saturday, August 17, our President, 7JH and Hon. Secretary, H. M. Moorhouse, in company with three or four other members, are starting for a week-end in the north and hope to interview northern members and exchange views on subjects of common concern, with hopes of strengthening the bond between members in this State.

A number of high power permits have been granted in VK7 recently, so some of our lads should get out with added vigor in the days to come, might even get interstate contracts on ultra HF. Hi!

7JB is concentrating on the Fisk trophy contest at present, and by the way, reminds QSL managers to use G.P.O. Box for cards—saves the postman!

7PA is very QRL at the moment putting all his spare moments into an extensive rebuild. His second operator is awaiting, with anxiety, the results of a second attempt at A.O.P.C., which should come along any time now, so there are hopes of having a qualified assistant there shortly.

Chummy has been too QRL with institute business to do anything more since missing in the April sitting, but is planning to have another shot in January at the latest.

The council has had a busy time up to the present, which leaves the secretary with plenty to do.

## West Australian Division

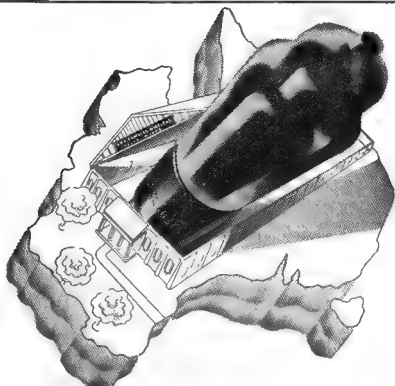
(By VK6LJ, Per Radio VK8ML.)

The only activity this month has been the traffic contest, and this has not caused much interest. It was delayed one week because the results were not to hand in time to get going right away. The official results are not yet to hand, but it looks as though it will be a close go between 6LJ and 6SA. 6MN and 6KO were the only other participants, and 6CF, 6RW, 6MU, 6JE, and 6JG came on in the end to cause a sensation. The approximate details are as follows:—6LJ 201, 6SA 200, 6KO 180, and 6MN 180 points, and six others well under 50 points.

Another general meeting was held on the eighth of August, and a good lecture was given by 6MN on portable gear and aeriels. Prior to this the jolly old shack meeting was held at 6WS QRA, in Peppermint Grove. The meeting was the longest held in VK6 and ended about 12.48 a.m. A good turn up was had and two by two we went to inspect the gear de luxe—only two by two, and it is a puzzle how 6WS gets into that shack, Hi! 6BB turned knobs and we saw more of Mickey Mouse and field days. It was an excellent show and even 6RK, at Northam, came down to see us.

6BN still keeps his fowl pen and remains chicken-hearted. 6BB has a habit of putting his hand out. He is the treasurer. 6CB is rumoured to be going on the air. 6CK just about has a glass arm through pushing a pen. 6DH and 6DA not heard of now. 6GM is very qrl with service work, but finds time to churn out some good fone at times. 6JE, our country cousin, is still very active, and is expecting to land an FBXA from U.S.A. any day now. 6KZ, at R.A.A. barracks, at the Port, is thinking of taking a trip to Abyssinia. Hi! 6LJ is qrl with the qsl bureau and magazine. 6MN was in the tlc contest, and is still trying to dig up 56 m.e. 6MW has been qso many VK's on 3.5 m.e. band with fone. 6PK is not heard of very much these days, he gets enough at the P.M.G. all day. 6RD uses a clothes line for an antenna, but when a pair of — were hung out they caused a large short to earth. Hi! 6SA has been reported qso r8 in KA. 6WS on 3.5 m.e. fone complains of VK's whistling, playing records and calling CQ at the same time. These VIM birds must be very clever. 6WI was on the air during the tlc contest and is sure a credit to 6GM for the work he put into it.

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## R.A.A.F. Wireless Reserve Notes

|                                                                                                                                                             |                                                                                                                                                           |                                                                                                                   |
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| <br><b>VMC</b><br>Total Msgs. 294<br>Stns. Rptng. 20<br>Ave. Per Stn. 14.7 | <br><b>VMC 3</b><br>Total Msgs. 92<br>Stns. Rptng. 4<br>Ave. Per Stn. 23 | <br><b>3C3</b><br>Total Msgs. 33 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|

### FEDERAL NOTES.

During the month several collective call signs were issued for aiding in expeditious traffic handling. It is hoped that full use will be made of these calls.

September 1 will be a great day for the VMC lads. A visit to Richmond has been planned and a full day's programme will be of wonderful assistance towards brightening up that District. The day will be spent in inspecting the station, attending lectures and perhaps some practical air training.

The long-sought-after supply of crystals to members will shortly be released. Tenders were called for during the month and about one month from the time of the issue of this magazine will see all Districts completely fitted out with crystals.

A Reserve Bulletin, published quarterly, and sent to all members free, will be released on September 1. The "Bull" will contain not only items of general interest in the way of articles on the various phases of the Air Force, but many educational articles on procedure, etc. This paper will be for the Reserve member and, undoubtedly, will prove of interest all round. Just wait and see.

An annual training flight will be made to Perth in October again, and plenty of co-operation is looked forward to, although the present Demons are not fully fitted out with W/t suitable for Reserve co-operation. However, the VMC members know how warmly the P.A.F. feels towards the Reservist and will surely get all the co-operation they want when the time comes.

### R.A.A.F. 3rd DISTRICT NOTES.

(3Z1—VK3UK.)

The coming Fisk trophy contest will be the first occasion on which the Reserve, as a whole, has participated in any ham contest. Although this one is not as suitable as it might be from a Reserve point of view, as traffic handling ability will be only of minor assistance, the test will be very interesting. The year is getting so full of contests of one kind and another that it would be practically impossible for us to run one of our own without it clashing with one of them. Additional interest will be had in VMC in this test, because the winning 3rd District Reserve member will receive our trophy, which is competed for annually.

3B4 and 3B5 have just moved up to the active ranks and have settled down very quickly. 3JV and 3E1, who have been forced into inactivity by pressure of work, will be back on regular schedules again soon.

3B6 has been inactive for the last few Sundays. I hope it is pressure of business with you, too, Dick!

VMC3 have put up the leading traffic totals for this month. Their boast is that they never handle a dummy or superfluous message, everyone being solid traffic. I can substantiate their claim, too, because I have never heard them handle dummy messages on any of their many schedules.

3C1 is rebuilding his whole station at present.

3C3 is very busy servicing radios, Reserve work, and manages to do a lot of experimenting into the bargain.

3C6 spends a lot of time on 40 as well as 80. John, who is the present Ramsay trophy holder, is going to take some beating at the next contest, because he certainly doesn't need to get "his hand in."

3D1 paid a flying visit to VIM early this month and had a few minutes yarn with 3Z1. Frank will be due for another attack of the DX bug shortly, as he has been lying low for a while. Perhaps it will coincide with the coming VK—ZL contest.

3D4 is expecting his new house lighting batteries any time now, and will be able to spend more time on the air as a result.

3E1 will make a welcome reappearance to Reserve schedules on 25th, after his trip

### SIXTH DISTRICT.

(By 6Z1—6MN.)

Watchkeeping has been fairly regular lately. After shifting his location to another part of the town 6A3 came on again without loss of time. He has a two acre block in which to play with aerials. A big welcome is extended to Jim Elabury, who signs 6B1 at Kalgoolie. Jim is hot on the trail and is showing a mountain of interest in procedure, and although only a new comer to even the amateur game, he has made great strides towards mastering R.A.A.F. procedure. 6A2 is handling interstate watches with success with 6A2 and 1A1. The certain starters for the Fisk contest here are, 6Z1, 6A2 and 6B1. Maybe also, 6A3 and 6Z2 will join in.

## HAMADS

Advertising space in these columns is available to those wishing to sell, buy or exchange, at 3d. per line; approximately five words to the line. Minimum charge, 1/-. To ensure insertion enclose postal note or stamps with copy, and address to the Advertising Manager, "Amateur Radio," 126 White Horse Road, Box Hill, E.11., Victoria.

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Letters containing subscriptions only should be addressed to the Treasurer, W.I.A., Box 2611W, G.P.O., Melbourne, C.1.

## Putting Fire into "Five"

Sunday, September 15th, will see about a dozen parties of VK3s setting out for the first organised five metre field day in Victoria. Following on the tests carried out by VK2 and VK4 with aeroplane 56mc radio gear it was decided at a shack meeting at VK3BQ's to see what could be done from the hills surrounding Melbourne. Most of the active and consistent 56mc men were present and full plans were drawn up for the day's operations. About twelve sites were selected, such as, Mount Dandenong, Mount Macedon, Arthur's Seat, etc., and each group was allotted a location.

The programme commences at 1000 hours EST when all stations should have their portable gear in operation and rotary beams well oiled up. Up till lunch time there will be an "open-go" for all, but after that each group will only transmit at its given time and the rest will listen until it is the next group's turn. It is expected that the Geelong gang will have their home stations in operation in case the signals find their way across the Bay! The day will conclude at 1700 hours. Some of the stations participating will be: 3BQ, 3UK, 3RS, 3KQ, 3DH, 3ML, 3WG, 3YZ, 3BW, 3KW, 3KE and 3YP. All country hams are asked to keep an eye open on 56mc between 10 a.m. and 5 p.m. on 15/9/35 for a red hot ray of "beamed" signals hi.

We are delighted to welcome the past president of the Victorian Division. Harry Kinnear, VK3KN, back home in VIM. He has had a business trip to England and America. The gang will be able to get all the latest overseas news, if he can be persuaded to take the floor.

## Book Reviewed

All amateurs throughout this country have received by now a circular announcing the arrival of the A.R.R.L. Lightning Calculator at McGill's Agency, Elizabeth Street, Melbourne.

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Ivan Miller, VK3EG, has donated £1/1/- as award to VK station in October contest who effects a W.B.E. in the shortest time. (No VK need be worked). Those claiming this award must clearly enter details on log return. Thanks, 3EG. — VK3ML, Contest Manager.

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